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EGYPT.

Eradication of malaria from the city of Ismailia by means of measures for mosquito destruction.

[From the Österreichische Sanitätswesen, Vienna, January 10, 1907.]

The city of Ismailia was founded in 1862, and at the present time numbers 8,000 inhabitants. It is situated in the government district of the canal on the north shore of Lake Timsah, which is intersected by the canal at about an equal distance between the Red Sea and the Mediterranean. The health conditions of Ismailia were considered favorable, but in 1877 malarial fever broke out in the city with such intensity that by the year 1886 nearly every inhabitant had been attacked. After many unsuccessful attempts to overcome the disease the Suez Canal Company undertook, in 1901, to put into effect active measures for the destruction of mosquitoes, which were beginning to be recognized as agents in the diffusion of malaria. These measures were carried out during a period of two years with the result of completely eradicating malaria from the city.

Three theoretical methods for the local campaign against malaria were considered. (1) Cure by quinine or removal of all fever patients. (2) Protection of inhabitants against the bite of mosquitoes. (3) Extirpation of mosquitoes (winged insects and larvæ). The canal company adopted two methods. The sick and a large number of the unaffected inhabitants were treated with quinine. Simultaneously with this treatment a search was begun for *Anopheles* in the vicinity of Ismailia in the adult and larval forms and for the ordinary stinging flies. This search was followed by an endeavor to sanitate the ground and standing water and refuse.

The first discovery of *Anopheles* was made about the beginning of August, 1901, at a time when the city generally was free from mosquitoes. A few days later they were found to be generally diffused. The captured mosquitoes were found for the most part to belong to the variety *Anopheles pharonensis*, which are universally present in North Africa, and the *Anopheles chaudoyei*, known in Algeria. It was found that the critical season began about July and that a breeding place of the *Anopheles* existed in the eastern part of the city. All the stagnant water in the vicinity of Ismailia was examined for *Anopheles* larvæ. These were soon found to be present in every pool and puddle formed in the cultivated land near the town, in the irrigation and drainage canals, and in deposits of water formed by infiltration from the fresh-water canal.

No larvæ were found on the reeds or water plants along the shore of the canal, and none in the large marshes or in canal water. It was therefore demonstrated that the propagation of the *Anopheles* in Ismailia occurred in the numerous small, shallow pools on land to the east, west, and south of the city. These deposits were full of water only at the time of the overflowing of the Nile, and during the remainder of the year were dry. Experiment in the life duration of larvæ after partial drying showed that they recovered their vitality after several hours' exposure on dry sand when placed again in water. These conclusions indicated that for the destruction of the *Anopheles* mosquito it was necessary to eliminate all the deposits of water in which the larvæ were found.

Numerous observations showed further that the *Culex* and *Stegomyia* mosquitoes existed in great numbers throughout the entire year, in ditches, drains, kitchen and laundry waste water and water containers in houses. The larvæ of the stinging flies were also found in pools, puddles, and drainage canals.

On December 27, at a conference of the canal company, it was determined to lay down a definite programme for the work of extirpation. It was decided to increase the flow of water in the canals. New drainage canals were provided, larger water basins were allowed to dry, small depressions were filled with earth or sand, the drainage canals were deepened, and reeds and water plants were cut down or uprooted.

Since the completion of this work no mosquito larvæ have been found in the water in the sanitated area, although some isolated *Anopheles* have been found at the beginning of summer in the city itself. The place of origin of these isolated mosquitoes is believed to be the Nefiche lagoon, which is very irregular in shape and exhibits a shore line' covered with small pools. The work of drying out part of the marsh and filling in the remainder was begun in the spring of 1906.

The mosquitoes in the vicinity of the city were destroyed by means of the sanitary work described. In order to destroy any mosquitoes that might harbor in houses, a service was organized for the purpose of visiting each house weekly and emptying all standing water or, where that was impossible, oiling the water and treating all sinks and drains with a mixture of crude and refined petroleum.

The results of the sanitary work may be stated as follows:

Since the beginning of the year 1903 mosquitoes and all varieties of stinging flies, which were previously present at Ismailia, have disappeared, and the inhabitants have been able to dispense with mosquito nets.

Since the autumn of 1903 no larvæ of the *Anopheles* have been found in the area of sanitation which surrounds the town at a distance of about 1,800 meters from the last house.

Since 1902 a marked decrease in the prevalence of intermittent fevers has been observed, and since 1903 not one case of malaria has been reported in Ismailia.

The number of the malarial patients, which in 1877 was 300, rose in 1886 to more than 2,500, in the year 1902 to more than 1,500, in the year 1903 was only a little over 200, and in the year 1905 amounted to only about 50 odd cases.

Isolated *Anopheles* continued to be found in the autumn of each year. They were probably conveyed to Ismailia by the wind or by railway or ship travel, and constitute no source of danger to the city.

The original importation of malaria into Ismailia is referred to the numerous Italian laborers employed on the Ismailian Canal. These laborers probably brought the disease with them.

GERMANY.

Smallpox in the Province of Posen.

Consul Norton, at Chemitz, forwards, under date of January 14, information of the presence of smallpox in the hemorrhagic form in the vicinity of Bromberg. He reports 4 cases at Schwedenhöhe, and several cases at Bleichfelde.